GENERAL INFORMATION

INTRODUCTION 1

WEIGHT RESTRICTIONS 3

Regulations and Requirements 3
Gross Axle Weight Rating 3
Weighing the Vehicle 3
Tire Inflation 3
Center of Gravity 3

INSTALLATION OF BODY AND SPECIAL EQUIPMENT 4

Clearance Around Engine, Driveline and Others 4
Engine 4
Transmission 4
Front and Center Propeller shafts 4
Rear Propeller Shaft 5
Exhaust System Clearance 5
Rear Wheel and Axle Clearance 5
Other Clearances 5
Body Installation 6
Installation of Special Equipment on the Chassis 6
Subframe Design and Mounting 6
Contouring of Subframe 6
Prohibited Attachment Areas 7
Subframe Mounting Bracket Installation 7
Subframe Mounting U-bolt Installation 7
Modification of the Chassis Frame 8
Working on Chassis Frame 8
Drilling and Welding 8
Reinforcement of Chassis Frame 8
Welding 9
Fluid Lines 9
Preparation of Additional Lines 9
Installation of Additional Lines 9
Electrical Wiring and Harnessing 10
Wiring 10

WIRE COLOR CODE 12

Maximum Current Allowable in Low Voltage Wiring 12
Exhaust System 12
Fuel System 12
Rear Comb. Lamp/License Plate Lamp Mounting Bracket 12
Serviceability 13

Wheelbase Alteration 13

Shortening/Lengthening the Wheelbase without Altering the Frame 13

Altering the Wheelbase by Altering the Frame 13

Glossary of Terms–Chassis Wheelbase Alteration 13

1999 MODEL YEAR BODY APPLICATION SUMMARY CHART 17

1999 MODEL YEAR* BODY & PAYLOAD WEIGHT DISTRIBUTION (% FRONT/% REAR) 18

1999 GM/ISUZU SERIES TRUCK PRODUCT ENGINES 20

GVW/GCW Ratings 20

Clutch Engagement Torque Chart 21

PAINT CODE NUMBERS FOR 1987–1995 W3500/W4500 22

PAINT CODE NUMBERS FOR 1995.5–1999 W3500/W4500 23

PAINT CODE NUMBERS FOR 1997–1998 F SERIES MODELS (ZY1 PAINT SCHEME) 23

W3500, W4500, W5500 TOWING PROCEDURE 24

WEIGHT DISTRIBUTION 24

Weight Distribution Formulas 26

Basic Formulas 26

Weight Distribution Formulas in Words 27

Recommended Weight Distribution % of Gross Vehicle Weight by Axle 30

TRAILER WEIGHT 30
Payload at Kingpin 31
Payload at Rear Tandem 31

Performance Calculations 32
Speed Formula 32
Grade Horsepower Formula 32
Air Resistance Horsepower Formula 32
Engine Horsepower Formula 33
Gradeability Formula 33
Startability Formula 34
Vertical Center of Gravity Formula 34
Horizontal Center of Gravity Formula 35

INTERSTATE HIGHWAY SYSTEM LIMITS 36
Bridge Gross Weight Formula 36
Bridge Formula Definitions 36
Consecutive Axle Weight 37
Exception to the Bridge Formula 37
Other Federal Provisions 37

FEDERAL BRIDGE FORMULA TABLE 38

W3500/W4500 DIESEL

SPECIFICATIONS 1

VEHICLE WEIGHTS, DIMENSIONS AND RATINGS 2

Variable Chassis Dimensions 3
Dimension Constants 3
12,000 lb. GVWR Manual Transmission Model 3
14,500 lb. GVWR Manual Transmission Model 3
12,000 lb. GVWR with Aisin Automatic Transmission Model 3
14,500 lb. GVWR with Aisin Automatic Transmission Model 3
Vehicle Weight Limits: 3
Model Descriptions 3

FRAME & CROSSMEMBER SPECIFICATIONS 4

FRAME CHART 5

AUXILIARY VIEWS 6

BODY BUILDER WEIGHT INFORMATION CHART 7

Cab Tilt 7
Center of Gravity 7

FRONT AXLE CHART 8

REAR AXLE CHART 9

Definitions 10
Formulas for Calculating Rear Width and Height Dimensions 10

SUSPENSION DEFLECTION CHARTS 11

TIRE AND DISC WHEEL CHART 12

Tire 12
Disc Wheel 12

PROPELLER SHAFT 13

PTO LOCATION, DRIVE GEAR AND OPENING INFORMATION 15

Opening Diagram 16

BRAKE SYSTEM SCHEMATIC 17

Vacuum Over Hydraulic 17

1999 MODEL DIESEL FUEL FILLER 18

Installation Instructions 18

INSTALLATION DRAWINGS OF FUEL FILLER HOSE 19

Drawing #1 19
Drawing #2 19
Drawing #3 20
Drawing #4 20
Drawing #5 21
Drawing #3 21

W3500/W4500 GAS

SPECIFICATIONS 1

VEHICLE WEIGHTS, DIMENSIONS AND RATINGS 2

- Variable Chassis Dimensions 3
- Dimension Constants 11,050 GVW 3
- 11,050 lb. GVWR with 4L80-E Hydra-Matic Transmission Model Federal 3
- 11,050 lb. GVWR with 4L80-E Hydra-Matic Transmission Model California 3
- Dimension Constants 14,050 GVW 3
- 14,050 lb. GVWR with 4L80-E Hydra-Matic Transmission Model California/Federal 3
- Vehicle Weight Limits: 3

FRAME & CROSSMEMBER SPECIFICATIONS 4

FRAME CHART 5

AUXILIARY VIEWS 6

BODY BUILDER WEIGHT INFORMATION CHART 7

- Cab Tilt 7
- Center of Gravity 7

FRONT AXLE CHART 8

REAR AXLE CHART 9

- Definitions 10
- Formulas for Calculating Rear Width and Height Dimensions 10

SUSPENSION DEFLECTION CHARTS FOR W3500 11

SUSPENSION DEFLECTION CHARTS FOR W4500 12

TIRE AND DISC WHEEL CHART 13

- Tire 13
- Disc Wheel 13

PROPELLER SHAFT 14

BRAKE SYSTEM SCHEMATIC 16

- Vacuum Over Hydraulic 16

1999 MODEL GASOLINE FUEL FILLER 17

- Installation Instructions (Revised) 17
- Gas Filler Neck Installation (Rear View) 96” Wide Body 17

GAS FILLER NECK INSTALLATION (TOP VIEW) 96” WIDE BODY . 18

- Gas Filler Neck Installation (Top View) 96” Wide Body 18

W5500 DIESEL

SPECIFICATIONS 1

VEHICLE WEIGHTS, DIMENSIONS AND RATINGS 2

- Variable Chassis Dimensions 3
- Dimension Constants 3
- 16,500 lb. GVWR Manual Transmission Model 3
- 16,500 lb. GVWR Automatic Transmission Model 3
- Vehicle Weight Limits: 3
- Model Descriptions 3

FRAME & CROSSMEMBER SPECIFICATIONS 4

FRAME CHART 5

AUXILIARY VIEWS 6

BODY BUILDER WEIGHT INFORMATION CHART 7

- Cab Tilt 7
- Center of Gravity 7

FRONT AXLE CHART 8

REAR AXLE CHART 9

- Definitions 10
- Formulas for Calculating Rear Width and Height Dimensions 10

SUSPENSION DEFLECTION CHARTS 11

TIRE AND DISC WHEEL CHART 12

- Tire 12
- Disc Wheel 12

PROPELLER SHAFT 13

PTO LOCATION, DRIVE GEAR AND OPENING INFORMATION 15

- Opening Diagram 16

BRAKE SYSTEM SCHEMATIC 17

- Vacuum Over Hydraulic 17

ELECTRICAL

FAST IDLE/PTO – 7.4L (LP4/L21) 1
OVERVIEW 1

FAST IDLE (UF3) 2

POWER TAKE OFF (PTO) 3
PTO SWITCHES 3
PTO – Stationary Preset Mode 4
PTO – Stationary Variable Mode 6
PTO–Mobile Variable Mode 8
PTO ENGINE FAULT SHUTDOWN 10
Remote PTO Connector 10

APPENDIX 11
REPROGRAMMING THE PCM FOR FAST IDLE/PTO USING THE TECH 2 SCAN TOOL 11

Fast Idle/PTO Illustrations 12
Fast Idle Switch 12
Fast Idle lamp 12
Location View Of PTO Enable Switch 13
Location View Of Remote PTO Connector 13
1999/2000 C–Series Remote PTO Connector 14
1999/2000 C–Series W/7.4L Engine BODY BUILDER WIRING REQUIRED FOR REMOTE PTO WITH CRUISE CONTROL (K34) AND POWER TAKE OFF (PTO) 15
1999 C – Series W/7.4L Engine REMOTE PTO OPERATION SCHEMATIC WITH CRUISE CONTROL (K34) AND POWER TAKE OFF (PTO) 16